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NEW CADDISFLIES (TRICHOPTERA) FOR THE FAUNA OF THE WESTERN SAYAN MOUNTAINS, SOUTH SIBERIA

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Summary. New data on the caddisflies (Trichoptera) inhabiting rivers and streams of the Western Sayan Mountains, south of East Siberia, Russia are provided. Eleven species are recorded for the territory of the Western Sayan for the first time. Five species, *Hydropsyche valvata* Martynov, 1927, *Anabolia laevis* (Zetterstedt, 1840), *Chaetopteryx villosa* (Fabricius, 1798), *Apataniana tschuktschorum* Levanidova, 1979, and *Oecetis testacea* (Curtis, 1834), are new for the south of East Siberia (the Republic Khakassia and south of Krasnoyarsk Krai).

Key words: Trichoptera, fauna, new records, Western Sayan, Krasnoyarsk Krai, Tuva, Khakassia.

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Резюме. Приводятся новые данные по фауне ручейников (Trichoptera) водотоков Западного Саяна (юг Восточной Сибири, Россия). Одиннадцать видов впервые приводятся для территории Западного Саяна (Хакассия, юг Красноярского края). Для юга Восточной Сибири впервые указаны пять видов: *Hydropsyche valvata* Martynov, 1927, *Anabolia laevis* (Zetterstedt, 1840), *Chaetopteryx villosa* (Fabricius, 1798), *Apataniana tschuktschorum* Levanidova, 1979 и *Oecetis testacea* (Curtis, 1834).

INTRODUCTION

Studying of the trichopteran fauna of Altay and neighboring regions of South Siberia was founded by Martynov (1909, 1910, 1914) at the beginning of XX century. Next, in the middle of the XX century, studying was renewed by Lepneva (1948, 1949). Intensely studying of trichopteran diversity of Western Sayan was started at the end of XX and at the beginning of XXI century (Zaika, 1993, 2004, 2006, 2009, 2019; Dragan, 2013, 2014, 2019a, 2019b; Glushenko *et al*., 2009; Zuev *et al*., 2012; Adrianova *et al*., 2013, Adrianova, 2015). Up to present the species list of caddisflies from of the Western Sayan includes 81 species, but this is evidently far from complete for this territory. The present paper is focused on providing the more complete species list of Trichoptera of Western Sayan Mountains.

MATERIAL AND METHODS

Caddisflies larvae were collected in rivers, small rivers and brooks of the Western Sayan at the territory of Tuva, Khakassia and Krasnoyarsk Krai at summer period in 2013, 2016 and 2018. We used the GPS navigators to determine geographical coordinates and altitudes. Samplings were done by quantitative sampling methods for macrozoobenthos, using water net, at different water stations. All samplings were fixed in 75% ethanol and marked. Specimen identification was done using available keys (Lepneva, 1964, 1966; Ivanov *et al*., 2001; Neu & Tobias, 2004). Herein used taxonomy follows the Trichoptera World Checklist (Morse, 2020). The distribution of species is given according to literary data (Zasypkina & Ryabushkin, 2001; Beketov, 2006; Ivanov & Melnitsky, 2007; Zaika 2004, 2006, 2009; Chuluunbat *et al*., 2016; Kuranishi & Tanida, 2016; Pan'kov & Krasheninnikov, 2016; Smirnova *et al*., 2016; Yang *et al*., 2016; Zasypkina 2016; Loskutova & Rafikova, 2018; Baturina, 2019). The main part of studied specimens is deposited in the collections of Novosibirsk State University.

Table 1. Description of sampling point at watercourses of the Western Sayan Mountains

No	Rivers, year of sampling	Administrative district and the nearest settlement	Latitude / Longitude
		Rivers	
1	Ona, 2013	Khakassia, Camp «Snow Leopard”	51,70741 N / 89,88803 E
2	Ona, 2013	Khakassia, Camp «Snow Leopard”	51,72730 N / 89,83576 E
3	Ona, 2013	Khakassia, Camp «Snow Leopard”	51,76036 N / 89,83021 E
4	Ona, 2013	Khakassia, Camp «Snow Leopard”	51,82927 N /89,80073 E
5	Ona, 2013	Khakassia, Camp «Snow Leopard”	51,84184 N / 89,79078 E
6	Ona, 2013	Khakassia, Camp «Snow Leopard”	51,89645 N / 89,81185 E
7	Ona, 2013	Khakassia, Bolshoi On	51,98747 N / 89,77855 E
8	Ona, 2013	Khakassia, Kubaika	52,30188 N / 89,82606 E
9	Kebezh, 2013	Krasnoyarsk Krai, Camp “Ergaki”	52,85730 N / 93,25952 E
10	Kebezh, 2013	Krasnoyarsk Krai, Camp “Ergaki”	52,85908 N / 93,26394 E
11	Kebezh, 2013	Krasnoyarsk Krai, Camp “Ergaki”	52,88481 N / 93,28327 E
12	Kebezh, 2013	Krasnoyarsk Krai, Grigor’evka	53.22766 N / 92.85644 E
13	Oia, 2013	Krasnoyarsk Krai, Nijnii-Suetuk	53,32550 N / 92,46832 E
14	Idzim, 2013	Krasnoyarsk Krai, Turan	52.26095 N / 93.43281 E
		Small rivers	
15	Us, 2013	Krasnoyarsk Krai, Idjzim (uninhabited)	52.33529 N / 93.21259 E
16	Us, 2013	Krasnoyarsk Krai, Verhneusinskoye	52.26895 N / 93.07252 E
17	Tashtyp, 2013	Khakassia, Anchul	52.91548 N / 89.33991 E
18	Tashtyp, 2013	Khakassia, Anchul	52.80852 N / 89.51262 E
19	Tashtyp, 2013	Khakassia, Tashtyp	52.80354 N / 89.88477 E
20	Tashtyp, 2013	Khakassia, Ust’-Tashtyp	52.88566 N / 90.19376 E
21	Ak-Sug, 2016	Tuva, Camp «Snow Leopard”	51.70278 N / 89.92376 E
22	Ak-Sug, 2016	Tuva, Camp «Snow Leopard”	51.70118 N / 89.96698 E
23	Ak-Sug, 2016	Tuva, Camp «Snow Leopard”	51.61951 N / 90.07563 E
24	Ak-Sug, 2016	Tuva, Ak-Dovourak	51.51865 N / 90.18123 E
25	Ak-Sug, 2016	Tuva, Ak-Dovourak	51.39543 N / 90.46135 E
26	Ak-Sug, 2016	Tuva, Bora-Taiga	51.40983 N / 91.13499 E
27	Begerda, 2018	Tuva, Sush	51.96809 N / 94.30554 E

Our data is based on material collected in 2013, 2016 and 2018 at rivers and streams at Khakassia, Tuva and Krasnoyarsk Krai (territory of Western Sayan). Description of sampling places: coordinates, administrative district, the nearest settlement or village are presented at the Table 1. Further, the number of the sampling point will be given according to Table 1 at the species list.

NEW RECORDS

Family Hydropsychidae

***Hydropsyche valvata* Martynov, 1927**

MATERIAL. Larvae from locations: 13, 19.

DISTRIBUTION. Russia (Altay, West Siberia, Far East), Kazakhstan, Mongolia, China, Korea.

REMARKS. This species is recorded for the south of East Siberia (from Khakassia and south of Krasnoyarsk Krai) for the first time.

Family Limnephilidae

***Anabolia laevis* (Zetterstedt, 1840)**

MATERIAL. Larvae from locations: 13, 20.

DISTRIBUTION. Russia (European part, Caucasus, Ural, West Siberia), Europe, Kazakhstan.

REMARKS. This species is recorded for the south of East Siberia (from Khakassia and south of Krasnoyarsk Krai) for the first time.

***Chaetopteryx villosa* (Fabricius, 1798)**

MATERIAL. Larvae from locations: 7, 13, 14.

DISTRIBUTION. Russia (European part, Ural Mountains, West Siberia), Europe.

REMARKS. This species is recorded for the south of East Siberia (from Khakassia and south of Krasnoyarsk Krai) for the first time.

***Dicosmoecus obscuripennis* Banks, 1938**

MATERIAL. Larvae from locations: 14, 15, 25.

DISTRIBUTION. Russia (Tuva, East Siberia, Far East), North America (Alaska).

REMARKS. This species is recorded for the Western Sayan (south of Krasnoyarsk Krai and northwest Tuva territory) for the first time. Previously was known from southwest Tuva (Zaika, 2004).

***Stenophylax lateralis* (Stephens, 1837)**

MATERIAL. Larvae from locations: 18, 25, 26.

DISTRIBUTION. Russia (European part Siberia, Altay, Tuva), Europe.

REMARKS. This species is recorded for the Western Sayan (south of Krasnoyarsk Krai and Khakassia territory) for the first time. Previously was known from south Tuva (Zaika, 2009).

Stenophylax sp.

MATERIAL. Larvae from locations: 16, 19, 23, 24.

NOTES. Larva of this genus are slightly investigated at East Siberia. There are no reliable larvae identification keys for group of species in Siberia (Ivanov *et al*., 2001).

***Pseudostenophylax* sp.**

MATERIAL. Larvae from locations: 2, 3, 5, 9, 11.

NOTES. Larva of this genus are slightly investigated at East Siberia. There are no reliable larvae identification keys for species in Siberia (Ivanov *et al*., 2001).

Family Brachycentridae

***Micrasema gelidum* MacLachlan, 1876**

MATERIAL. Larvae from locations: 14, 15.

DISTRIBUTION. Russia (European part, Ural, West Siberia, Yakutia, Far East), Mongolia, Korea, Japan, North America (Yukon, Alaska).

REMARKS. This species is recorded for the Western Sayan (south of Krasnoyarsk Krai territory) for the first time. Previously was known from Altay and Irkutsk Region (Ivanov & Melnitsky, 2007).

Family Apataniidae

***Apataniana tschuktschorum* Levanidova, 1979**

MATERIAL. Larvae from locations: 1, 2.

DISTRIBUTION. Russia (Siberia, Far East).

REMARKS. This species is recorded for the south of East Siberia (Khakassia) for the first time.

***Apatania zonella* (Zetterstedt, 1840)**

MATERIAL. Larvae from locations: 2, 4.

DISTRIBUTION. Russia (European part, Ural Mountains, Siberia, Tuva, Far East), Europe, Japan, North America (Alaska).

REMARKS. This species is recorded for the Western Sayan (Khakassia territory) for the first time. Previously was known from west Tuva (Zaika, 2006).

Family Leptoceridae

***Oecetis testacea* (Curtis, 1834)**

MATERIAL. Larvae from locations: 12, 13.

DISTRIBUTION. Russia (European part, Far East), Europe, Japan, Korea.

REMARKS. This species is recorded for the south of East Siberia (Khakassia) for the first time.

CONCLUSION

According to published data and the results of processing the collected material in 2013, 2016, 2018 the list of caddisflies of Western Sayan Mountains contains 92 species from 48 genera and 16 families. Eleven species were recorded for the Western Sayan for the first time and five of them are new to the south of East Siberia (the Republic Khakassia and south of Krasnoyarsk Krai).

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